

Application Serial No. 10/003,463  
Amendment Dated 18 August 2009  
Reply to Office Action dated 23 February 2009

*AMENDMENTS TO THE CLAIMS*

This listing of claims will replace all prior versions, and listings, of claims in the application.

*Listing of Claims*

Claim 1 (currently amended): A pharmaceutical vaccine composition that potentiates immunogenicity of low immunogenic antigens, comprising:

(A) one or more low immunogenic antigens selected from the group consisting of peptides, polypeptides, proteins and their corresponding nucleic acid sequences; and

(B) an immunogenic potentiating effective amount of a vaccine carrier consisting of very small size proteoliposomes (VSSPs), wherein the VSSPs are derived from the Outer Membrane Protein Complex (OMPC) of *Neisseria meningitidis* wherein gangliosides have been incorporated into the OMPC,

wherein the antigen is not structurally changed by chemical protein conjugation and is not incorporated into the VSSPs and wherein the vaccine carrier stimulates and potentiates both humoral and cellular immune responses against the antigen.

Claim 2 (canceled).

Claim 3 (currently amended): The composition of claim 1, wherein the low immunogenic antigens or their extra-cellular domains are growth factor receptors or their extra-cellular domains.

Claim 4 (previously presented): The composition of claim 3, wherein the extra-cellular domains of the growth factors receptors may or may not contain the trans-membrane region.

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Claim 5 (previously presented): The composition of claims 3, wherein the growth factor receptors are HER-1, HER-2, PDGR-R or any variation containing the extra-cellular domain, with or without the trans-membrane region.

Claim 6 (previously presented): The composition of claim 1, wherein the *Neisseria meningitidis* is either a wild type or a genetically modified strain.

Claim 7 (previously presented): The composition of claim 1, wherein the VSSPs are obtained by hydrophobically incorporating the gangliosides into the OMPC.

Claim 8 (previously presented): The composition of claim 7, wherein the gangliosides are GM1, GM3, their N-acetylated variations or their N-glycolylated variations.

Claim 9 (previously presented): The composition of claim 27, wherein the adjuvant is an oily adjuvant, or a natural or recombinant polypeptide.

Claim 10 (previously presented): The composition of claim 9, wherein the oily adjuvant is the Incomplete Freund's Adjuvant.

Claim 11 (previously presented): The composition of claim 10, wherein the Incomplete Freund's Adjuvant is Montanide ISA 51.

Claim 12 (withdrawn): The composition of claim 9, wherein the polypeptide adjuvant is a cytokine.

Claim 13 (withdrawn): The composition of claim 12, wherein the cytokine is the Granulocyte-Macrophage Colony Stimulating Factor.

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Claims 14-26 (canceled).

Claim 27 (currently amended): The composition of claim 1, wherein the pharmaceutical composition further comprises one or more adjuvants.

Claim 28 (currently amended): The pharmaceutical composition of claim 8, wherein the gangliosides are N-acetylated GM3.

Claim 29 (previously presented): The composition of claim 5, wherein the growth factor receptor is HER-1.